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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/028,827 | 12/28/2001 | Akihiro Wada | 217818US0CONT | 5540 |
| 22850 | 7590 | 10/07/2004 | EXAMINER | |
| OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | KEYS, ROSALYND ANN | |
| | | | ART UNIT | PAPER NUMBER |

1621

DATE MAILED: 10/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|------------------------------------|--|
| Office Action Summary | Application No. 10/028,827 | Applicant(s) WADA ET AL. | |
| | Examiner Rosalynd Keys | Art Unit 1621 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-21 is/are pending in the application.
- 4a) Of the above claim(s) 8-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 14-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-6 and 8-21 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

1. Claims 1-6 and 8-21 are pending.
Claims 1-6 and 14-21 are rejected.
Claim 7 is canceled.
Claims 8-13 are withdrawn from consideration.

Election/Restrictions

2. See previous office action, mailed August 6, 2003.
3. Claims 8-13 remain withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
5. Claim 15 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the

application was filed, had possession of the claimed invention. The new matter includes the limitations referencing the amount (0.01 to 1.2 mol per mole of the alkanol) of fluoroalkanol present. The specification does not contain amounts of fluoroalkanol to be utilized.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 1-6 and 14-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joyce, Jr. (U.S. Patent No. 2,559,628) in view of Knaup (U.S. Patent No. 5,227,540) and further in view of Satokawa et al. (US 4,346,250).

The instant invention is directed to a process of preparing a fluoroalkanol having the claimed formula 1 by reacting an alkanol having the claimed formula 2 with a perfluoroolefin having the claimed formula 3, wherein the reaction is carried while continuously adding a radical initiator, in particular a dialkyl peroxide, and a perfluoroolefin having the claimed formula 3.

Joyce, Jr. teach a batch process for preparing a fluoroalkanol having the claimed formula 1 by reacting an alkanol having the claimed formula 2 with a perfluoroolefin having the claimed formula 3 in the presence of a catalyst (radical initiator) such as, diethyl peroxide (see entire document, in particular column 2, line 52 to column 3, line 7 and column 7, line 54 to column 9, line 64).

Joyce, Jr. differ from the instant invention in that Joyce do not teach carrying out the reaction while continuously adding the radical initiator and perfluoroolefin to increase the yield of the product fluoroalkanol. Joyce Jr., further fail to disclose the claimed reaction conditions and concentrations.

Satokawa et al. teach that the prior art batch processes, which include the process of Joyce, Jr., suffer from obtaining the desired telomer, i.e. fluoroalkanol, in a lowered yield, which is extremely disadvantageous from the industrial view point (see column 1, lines 13-17 and column 1, line 56 to column 2, line 2).

Knaup teaches preparing a fluoroalkanol by reacting an alkanol with a fluorinated olefin in the presence of a radical initiator, wherein the fluorinated olefin and radical initiator are continuously added (see entire disclosure, in particular column 1, line 58 to column 4, line 6). Knaup teaches that his process allows one to obtain the target fluoroalkanol in high yield and high purity as compared to a method wherein all the ingredients are added at once, i.e. a batch process. The reaction conditions and concentrations of the process of Knaup overlap with those of the instant claims (see column 1, line 64 to column 2, line 40 and column 4, lines 1-6). Knaup teaches that the addition is carried out essentially

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continuously, that is uninterruptedly at an essentially constant metering rate or alternatively in portions, but there should not be relatively long intervals of time between individual portions (see column 2, lines 41-60).

One having ordinary skill in the art at the time the invention was made would have been motivated to conduct the process of Joyce, Jr. in the manner as taught by Knaup in order obtain the fluoroalkanol of Joyce, Jr. in high yield and high purity.

The Joyce, Jr. reference is combinable with Knaup because Knaup solves the problem of low yield obtained with the batch process of Joyce, Jr. (see Satokawa et al., which points out said problem).

The skilled artisan would have further found it obvious to utilize the method of Knaup on the process of Joyce, Jr. since, the reference is in the same field of Joyce, Jr. (i.e., preparing a fluoroalkanol by reacting an alcohol with a fluorine -containing olefin in the presence of a radical initiator, and is reasonably pertinent to the particular problem with which Joyce, Jr. is faced, i.e. increasing the yield of the product fluoroalkanol, which is taught by Satokawa et al. to be extremely disadvantageous from the industrial view point. See, Ex parte Bland, 3 USPQ2d 1103 (Bd. Pat App. & Inter. 1986); Stratoflex, Inc. v. Aeroquip Corp., 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); and In re Mlot-Fijalkowski, 676 F.2d 666, 213 USPQ 713 (CCPA 1982). See also In re Oetiker, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). In re Deminski, 796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986); and In re Clay, 966 F.2d 656, 659, 23 USPQ2d 1058, 1060-61 (Fed. Cir. 1992).

The Examiner concludes that one having ordinary skill in the art at the time the invention was made when faced with the problem of increasing the yield of the fluoroalkanol of Joyce, Jr. would have looked to the method of Knaup, since Knaup is in the same field of Joyce Jr.'s endeavor and since Knaup solves the problem with which the fluoroalkanol art seeks a solution, i.e., the problem of lowered yield of the fluoroalkanol obtained the conventional batch processes (see Satokawa et al.).

The combination of Joyce Jr. with Knaup further differs from claim 21 in that Joyce, Jr. and Knaup fail to teach adding from 15 to 30% of the total amount of the radical initiator within one hour and the remaining amount of the radical initiator is added at a constant speed during the remaining reaction time. However, Knaup does teach that the addition can be done in portions. Thus, the skilled artisan would have found it obvious to add the radical initiator of Joyce, Jr. in portions, since Knaup teaches that the addition can occur continuously or as an alternative in portions. The selection of the specific portion amount of radical initiator to be added is within the scope of the ordinary skilled artisan and would have been obvious to the skilled artisan, since applicant has not disclosed that addition of from 15 to 30% of the total amount of the radical initiator within one hour is for any particular purpose and it appears from the teachings of Knaup that the reaction would perform equally well by either addition by portions or by continuous addition.

9. Claims 1-6 and 14-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knaup (U.S. Patent No. 5,227,540).

Knaup teaches preparing a fluoroalkanol by reacting an n-alkanol with a fluorine-containing olefin in the presence of free radical initiators, wherein the fluorine-containing olefin and radical initiator are continuously added (see entire disclosure, in particular column 1, line 58 to column 3, line 68). The radical initiators disclosed include dialkyl peroxides (see column 3, lines 56-63). Alkanols disclosed include methanol and ethanol (see column 3, lines 46-48). The reaction conditions and concentration of reaction components overlap with those of the instant claims (see column 1, line 64 to column 2, line 40 and column 4, lines 1-6). Knaup teaches that the addition is carried out essentially continuously, that is uninterruptedly at an essentially constant metering rate or alternatively in portions, but there should not be relatively long intervals of time between individual portions (see column 2, lines 41-60).

The claims differ from Knaup by employing a different fluorine-containing olefin as starting material. However, the reaction would still be expected to proceed in a similar manner as the reaction of Knaup because Knaup makes his fluoroalkanol by a similar method, i.e., by reaction of an alcohol with a fluorine-containing olefin in the presence of a radical initiator under specific reaction conditions. Further, Knaup conducts his reaction for the same purpose as applicants, i.e., to increase the yield of the product fluoroalkanol. One having ordinary skill in the art at the time the invention was made would have been

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motivated to employ the process of Knaup with the expectation of obtaining a fluoroalkanol in increased yield, since Knaup successfully solves this problem. When faced with the problem of increasing the yield of a fluoroalkanol prepared by reaction of an alcohol with a fluorine-containing olefin in the presence of a radical initiator, the skilled artisan would have looked to others in their field of endeavor who have successfully solved the problem of lowered fluoroalkanol yield. The method of Knaup is such a method, since Knaup is in the same field of applicant's endeavor and Knaup solves the problem of lowered yield of the fluoroalkanol obtained with a batch process. See, *Ex parte Bland*, 3 USPQ2d 1103 (Bd. Pat App. & Inter. 1986); *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); and *In re Mlot-Fijalkowski*, 676 F.2d 666, 213 USPQ 713 (CCPA 1982).

Knaup further differs from claim 21 in that Knaup fail to teach adding from 15 to 30% of the total amount of the radical initiator within one hour and remaining amount o f the radical initiator is added at a constant speed during the remaining reaction time. However, Knaup does teach that the addition can be done in portions. Thus, the skilled artisan would have at least been motivated to modify the amount and time of addition of radical initiator based on the teaching of Knaup. The selection of the specific portion amount of radical initiator to be added and the time within which it is to be added is within the scope of the ordinary skilled artisan and would have been an obvious matter of choice, since applicant has not disclosed that addition of from 15 to 30% of the

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total amount of the radical initiator within one hour is for any particular purpose and it appears from the teachings of Knaup that the reaction would perform equally well by either addition by portions or by continuous addition.

Response to Arguments

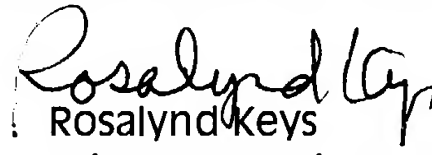
10. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rosalynd Keys whose telephone number is 571-272-0639. The examiner can normally be reached on M, R and F 3:00-8:00 pm and T-W 5:30-10:30 am.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Rosalyn Keys
Primary Examiner
Art Unit 1621

October 6, 2004